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ABSTRACT

Questioning in the college classroom remains an undeveloped, unrefined skill even though there is abundant evidence that classroom questioning can be improved. Research on classroom questioning techniques at the pre-college level shows that teachers ask questions that are predominantly literal in nature. Questions that require "higher order" responses such as interpreting, reasoning, and evaluating are infrequent. Good classroom questioning should engage student thought at different levels of cognitive complexity and abstraction. A substantive step that can be taken to improve questions involves formulating questions that "signal the type of response desired." Another step is to employ questioning strategies which arrange questions in a sequence with an objective or end in view. In lectures, students typically hear three kinds of questions: rhetorical, transitional, and discussion. These questions form a continuum for students' active participation in the lecture. The rhetorical question calls for only silent involvement, the discussion question demands vocal contributions, and the transitional question can request either, depending on the teacher's plans. Properly used, each kind does its part in the lecture in fostering intellectual dialogue not only between teacher and students, but also between students and the subject. (RS)

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QUESTIONS IN CLASSROOMS

by David Gliessman, School of Education, Indiana University, Bloomington

Along with lecture and discussion, questioning is a staple of instruction in college classrooms. Beginning most notably with Socrates, instructors have understood that well-formulated questions are one of the most direct means of engaging students in reasoned thought. Good questioning might be one characteristic of those classes that students describe as 'thought provoking.' In light of this, it is unsettling to note how frequently questioning remains an undeveloped, unrefined classroom skill. Why this is so is not entirely clear, but one guess is that as a familiar social behavior asking questions seems "second nature" and thus is unreflected upon. In any event, the evidence that classroom questioning can be improved is abundant, and the purpose of this brief discussion is to suggest some ways in which that can be done.

It is best to begin, however, with a look at the evidence on classroom questioning. While that evidence has been gathered very largely at the pre-college level, it *is* instructive. First, one can gain a perspective on the general experience that students have had with questioning before entering college. That perspective, in turn, may help the college instructor understand a few of the problems he or she has with the use of questions. Second, it is not unreasonable to hypothesize that questioning practices at the college level are in some part similar. Because far fewer data have been gathered at the college level, it would be premature to generalize. But we cannot afford to be sanguine. A wiser disposition would be one of objectivity about our own questioning habits as college instructors.

What Does the Evidence on Classroom Questions Show?

The descriptive evidence on classroom questioning at the precollege level is extensive (it must be among the two or three most studied phenomena in teaching) and also highly consistent. Briefly, the evidence shows that teachers ask questions that are predominantly literal in nature, questions calling essentially for the restatement or recognition of what has been read or heard. Questions that require 'higher order' responses such as interpreting, reasoning and evaluating are distinctly infrequent in classroom instruction. Thus, the thinking that students are asked to do is generally literal and repetitive rather than interpretive and reflective.

This concern with 'lower orders' of knowledge is sufficiently marked that even when an interpretive question is posed, it frequently becomes clear that a literal, 'correct' response really is sought. An example recorded by a colleague at another university may illustrate the point. Observing a secondary school class of college-bound students, he noted the following episode:

> On one occasion, the class was sharing written answers to workbook exercises designed to help them interpret metaphors. The first metaphor described 'the wind blowing leaves across a field in loops and figure eights.' The teacher asked: "What is the explicit comparison the author has in mind?" One of the boys in the class, an infrequent contributor, raised his hand enthusiastically and responded, "Auto-racing." Without comment, the teacher called on another student, a girl, who responded *correctly*, "A figure skater." There was no effort here to find out why the boy thought of auto-racing as the explicit comparison (Raths, 1984).

The same colleague concluded that the teachers he observed asked numerous questions, preferred short answers, and set a fast pace of questioning. This is a pattern that has, in fact, been recorded by other observers in many other classrooms.

Even more compelling evidence is the remarkable persistence of these questioning patterns: the research record reaches back 40 or more years. The reasons for the persistence of this pattern are not obvious but perhaps include the constraint of time, an uncertain grasp of basic knowledge, and possibly the knowledge values of our own society. These experiences with questioning may help to explain some of the more discouraging reactions that college students give to questions. A tendency to 'search out' the instructor for correct answers, an inability to construct complex answers, and a reticence about responding all may have their roots in the students' earlier experiences with classroom questions.

How Can Questioning in the College Classroom be Improved?

Granting that our habits of questioning are less than ideal, what might be done to change them? All I have said thus far implies that questioning can be improved by greater attention to a balance between questions requiring a literal response

and those requiring interpretive responses. In short, good classroom questioning engages student thought at different levels of cognitive complexity and abstraction. This is a theme that has been developed thoroughly in the literature on questioning; a number of very practical guides have been based upon it, the most notable of which have been Norris Sanders' *Classroom Questions: What Kinds?* and Francis Hunkins' *Questioning Strategies and Techniques* (the latter is the more substantive of the two). In the table below, a question-type classification is given which is typical of the levels of questioning idea. It should serve as a guide for the construction of questions that vary in cognitive level.

Cognitive Levels of Questions

5 Evaluating information, issues, solutions.
4 Solving problems; extended reasoning.
3 Interpreting in terms of causes, effects, factors that go beyond the given content.
2 Describing, comparing within the given content.
1 Restating, naming, classifying, defining.

After Brown & Edmondson (1984)

There are technical suggestions as well. Since clarity of questions is important, use familiar (not necessarily simple) terms and pose one question at a time. An effective, often overlooked means of improving the quality of student responses is to allow sufficient time for students to respond to a question. The key to this skill appears largely to be one of overcoming the discomfort that is so often felt with short periods of silence in the classroom. It was expressed well by one of my own students who said, "A minute of silence in the classroom seems like an hour to me."

There are still other, more substantive steps that can be taken to improve classroom questioning. The first of these entails the formulation of questions themselves, and the second, the formulation of questioning strategies. It is important to be as clear as possible about the kind of thinking that a question is intended to stimulate. I have noted already the tendency of teachers to ask questions seemingly intended to require interpretation but actually intended to stimulate exact recall. Any question should 'signal' the kind of response that is desired, and this can best be done by incorporating the standards of an acceptable response into the question itself. Let me give two brief examples of what I mean. It is quite typical for student responses to an evaluative question to reflect simple opinion rather than considered judgment. For example, during a classroom discussion of population control, one student suggests the need for government regulation. Following this, the teacher responds:

Teacher: All right, then you think that the government should step in and regulate this (i.e., number of children per family) in some way.
Student: Yes.
Teacher: Is that necessarily the best answer?

In addition to inviting a dichotomous response, a common failing in questioning, the teacher's question is devoid of a standard for judging what is 'best.' Is it an ethical, political, pragmatic or some other standard by which this solution is to be judged? The student may have one in mind, but the question hardly invites its expression.

Questions can vary on the response latitude allowed, ranging from 'open' (inviting responses varying widely in content) to 'closed' (requiring a single response or limited set of responses). Discussing the problem of wilderness survival, for example, an instructor might ask for ideas about survival tactics. The question, "What actions can you imagine taking?," signals the appropriateness of divergent responses. The question "If you keep in mind the first essentials for human survival, what action would you take?," clearly signals convergent thought.

Attention to questioning strategy is another productive way of improving questioning skills. By 'strategy,' I mean the arrangement of questions in sequence with an objective or end in view. Instructors are surprisingly inattentive to this aspect of questioning, even those who are quite systematic in arranging ideas to be presented in a lecture or the elements of a demonstration. A number of strategies have been identified that can improve upon the random quality of much classroom questioning. One of these has been termed 'extending and lifting,' a strategy which entails asking a series of questions at a basic knowledge level and then moving to questions at successively higher cognitive levels (for example, to interpretation and then to evaluation). A second strategy has been labeled 'funneling,' that is, beginning with a divergent or open question to pose a general problem, followed by a narrowing to convergent or closed (and perhaps literal) questions to establish the basic knowledge necessary for reflecting on that problem. Other strategies can be described but the fact remains that with most of us, question sequences generally are unplanned. The most common sequence, in fact, has been called a 'random walk,' an aptly descriptive term in itself.

It should be noted that our original definition of a strategy specifies an objective or end in view. Without such a goal, there really is not a rational basis for developing or selecting a questioning strategy. Thus, the primary problem for the instructor is to think carefully about the purposes that questioning serves.

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QUESTIONS IN THE LECTURE

by Bonnie F. Fisher, Teaching Resources Center, and Carol Jablonski, Speech Communication, Indiana University, Bloomington

A. "Would Desiderius have been content to rule Pavia as Charlemagne's lieutenant?"
B. "How, then, might we evaluate Turner's thesis?"
C. "If you had to decide this issue, knowing there'd be risk of war, what would you do?"

The above questions represent the three kinds that regularly are heard in lecture halls. Each has its particular function, aside from prodding students to listen. Seldom are lectures solid masses of declarative sentences. Teachers frequently intersperse their remarks with questions, rightly thinking that they are a means of keeping students awake and interested. But when intentionally and carefully employed, questions can do much more in a lecture.

We are all probably familiar with the first kind, the rhetorical question. Most people define it as a question that is not supposed to be answered, except perhaps by the lecturer. Occasionally entire lectures are organized as answers to a series of these questions. Yet, this is not the most effective use of the rhetorical question.

The rhetorical question is, in fact, a persuasive device. It is intended to operate on the audience both emotionally and intellectually, so that the listeners adopt the same viewpoint as the speaker or reply in a way and with an attitude predetermined by the speaker. For example, recall that famous question from the Carter-Reagan debate, "Are you better off than you were four years ago?" and the emotional as well as verbal response it produced.

In a lecture, rhetorical questions appear most frequently at the beginning and end of the hour or at the ends of significant points, where they might be a summarizing tactic. These are the places where the lecturer wants to pique curiosity, stimulate a particular feeling, or arouse mind and spirit for what is to come.

But rhetorical questions depend on several factors to be effective. First of all, they require a shared understanding between speaker and audience of some event, issue, or topic. In the classroom, where teacher and students are already thinking together about the subject of the course, no further work on this point needs to be done. Second, rhetorical questions should be dramatic. This means that they should be used sparingly during a lecture and provide a climax of some sort. The dramatic component is accentuated when the question is direct and relatively short. Third, the power of rhetorical questions relies heavily on how they are delivered. They should be set off from the rest of the discourse, and this is done by increasing the volume of the voice, exaggerating slightly the inflection and emphasizing key words, and pausing significantly either before or after the question. Lastly, the message communicated in the question and delivery should be matched in the facial expression and gestures. Look at the class, raise the eyebrows (or scowl as appropriate), move hands and body to support and underscore both words and attitude. You may want to try these suggestions out on question "A." Emphasize most strongly the words "Desiderius" and "lieutenant," and be sure to use a rising inflection at the end of the question. How did that work out?

Question "B" in the list is a transitional question. Its chief function is to signal the start of a new topic within an ongoing lecture. (Notice the word "then.") However, it also alerts students to bring forward from the last topic any points that are still unresolved in their minds. In this respect, the transitional question can be more efficient than the much repeated "Are there any questions before we go on?"

The transitional question can be used more frequently than the rhetorical question because it is more cognitively oriented. That is, it is geared to both the organization of the material and to the sequence of students' thinking about the material. But the teacher must give different cues in order to indicate whether a student response is wanted. If no response is wanted, keep the pause short following the question. Survey the class quickly (so that you can monitor raised hands), but don't have lengthy eye contact. Use a falling inflection at the end of the question. When you do wish students to answer, let them know by reversing these cues. Lengthen the wait time, achieve eye contact, lift the voice at the end of the question. Practice these signals with the second question in the above list.

The third question in the list is, of course, a discussion question, and it, too, can be employed in a lecture. It has a double function here: it calls for active thinking *and* participation from

Where to go from here:

For further information on questioning strategies and other teaching/learning related topics, contact the University Office for Learning Resources in Bloomington at

335-9023 or 335-2635

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students, and it also allows the teacher to engage in that thinking, too. Both parties are thinking about the same problem at the same time, drawing on more or less the same information and resources. In the lecture, a discussion question may come from either side of the podium. It tends to extend the scope of the lecture subject along novel, divergent, often unforeseen avenues, and for this reason it is seldom that more than one or two discussion questions can be considered in a single class period.

Lecturers should encourage student participation at these times by employing the appropriate techniques of discussion leading. But first, partly in order to allow themselves some thinking time, they should adopt a posture of reflectivity. This means that teachers should utilize body language and oral directives (e.g., "Let's think about this for a few minutes") to ensure the opportunity for thought. For example, following the question, stare at the floor or out the window, or move slowly to the side of the room. After a minute or so, indicate to students that you are ready to hear their answers (and share your own) by means of a position of responsiveness: walk to the center of the room, gain eye contact, raise the eyebrows, etc. Begin the discussion by restating the problem in much the same words as in the initial query, e.g., "Well, what would you do?" Listen carefully without interrupting, relate one student's reply to another, state the points that trouble you, summarize the answers, formulate a conclusion if possible, and then return to the lecture.

These three questions—the rhetorical, the transitional, the discussion—form a continuum for students' active participation in the lecture. The rhetorical question calls only for silent involvement, the discussion question demands vocal contributions, and the transitional question can request either, depending on the teacher's plans. Properly used, each kind does its part in the lecture in fostering intellectual dialogue between not only teacher and students, but also students and the subject.

BOOKS AND ARTICLES ON QUESTIONING AVAILABLE THROUGH THE IU LIBRARIES

Barnes, C. Questioning strategies to develop critical thinking skills. ERIC Document, 1979.
Barnes looks at the Aschner Gallagher system of classification. She examines four categories of questioning: cognitive, convergent, divergent, and evaluative.

Carin, A.A. & Sund, R.B. *Developing questioning techniques: A self-concept approach*. Columbus, OH: Charles E. Merrill Publishing Co., 1971.
The book is a practical manual with chapters such as "How to Write Questions fo, Cognitive Form Affective Form," "Questions for Creativity," and "Constructing Teaching Lessons Using a Discovery Questioning Approach."

Davies, I. *Instructional technique*. New York: McGraw-Hill, 1981.
Chapter 8 is devoted to questioning techniques. This chapter deals with how and what questions may be used in a lesson. The emphases are on how to phrase the questions and how to deliver them to students.

Gillin, C.J., Kysilka, M.L., Rogers, V.M., & Smith, L.B. Questioneze: *Individual or group involvement for developing questioning skills*. Columbus, OH: Charles E. Merrill Publishing Co., 1972.
This book is designed as a game for groups or individuals who are teachers or trainers to learn about how to compose written or oral questions at various cognitive levels by using Bloom's taxonomy as a criterion.

Hyman, R.T. *Ways of teaching*. New York: L.B. Lippincott Co., 1974.
Chapter 14 offers three complementary approaches in questioning—verification, productive thinking, and cognitive function—and some suggestions for application. It is useful in giving practical examples for each type of question discussed.

Miyake, N. & Norman, D. To ask a question, one must know enough to know what is not known. ERIC Document, 1978.
The authors look at the ability to ask a question, concluding that the ability rests upon two criteria: the existence of appropriate knowledge structure, and the level of completeness of those structures with respect to new material.

Rowe, M.B. Wait time and rewards as instructional variables. *Journal of Research in Science Teaching*, 1976, *11*, 81-94.

Sanders, N.M. *Classroom questions*. New York: Harper and Row, 1966.
This book is considered one of the classics on classroom questions.

Weigard, J. *Developing teacher competencies*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1971.
The book describes how questions are used as a model for the learner and allow for on-going monitoring. It also shows how classifying questions is useful.